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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/043,274	01/14/2002	Boris Goldberg	4071 USA/PDC/WF/OR	4731
32588	7590	10/24/2003	EXAMINER	
APPLIED MATERIALS, INC. 2881 SCOTT BLVD. M/S 2061 SANTA CLARA, CA 95050			CHERRY, EUNCHAP	
			ART UNIT	PAPER NUMBER

2872

DATE MAILED: 10/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/043,274

Applicant(s)

GOLDBERG ET AL.

Examiner

EUNCHA P. CHERRY

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 7/25/03.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3, 6, 7, 10-17, 19-25, 27-29 and 31-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Flint in view of Hayashi et al.

Flint discloses a polygon scanning system (Fig. 2) comprising:

a polygon having a reflective facet (233);  
rotation mechanism (240) for rotating the polygon;  
first light source (212) for directing a first light beam to impinge on the facet at a first incident angle such that the first light beam is reflected by the facet to scan a first portion of a surface of a substrate (252 then to 270) during a first time interval when the rotation mechanism is rotating the polygon (see abstract lines 1-3);

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a second light source (211) for directing a second light beam to impinge on the facet at a second incident angle such that the second light beam is reflected by the facet to scan a second portion of the surface of the substrate during a second time interval subsequent to the first time interval when the rotation mechanism is rotating the polygon (see abstract lines 1-3). The first and second light sources comprise a single light beam generator for generating an original light beam (200) and a first beam splitter (210) for splitting the original light beam into the first and second light beams. A mirror (227) for directing the second light beam to impinge on the facet (234). The first and second light sources comprise a single light beam generator for generating an original light beam and a diffraction grating for diffracting the original light beam into the first and second light beams (inherent from column 11, lines 3-5). The diffraction grating is for diffracting the original light beam into N light beams (at least two by column 11, lines 3-5), including the first and second light beams, to impinge on the facet at an Nth incident angle such that the Nth light beam is reflected by the facet to scan an Nth portion of the surface of the substrate during an Nth time interval when the rotation mechanism is rotating the polygon. The system further comprising an optical system (260) disposed between the facet

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and the substrate for focusing the first and second light beams. The first and second light sources provide laser lights, the original light source is a laser light source (column 10, lines 20-23). The first light source is for providing laser light at a first wavelength, and the second light source is for providing laser light at a second wavelength different from the first wavelength (column 10, lines 36-37, "approximately equal" therefore, there is a difference between the lights). One light of the plurality of light beams impinge on the facet at an incident angle different than the incident angles of the other light beams (see 211 and 212), and each light beam is reflected by the facet to scan a respective portion of a surface of a substrate during a respective time interval when the rotation mechanism is rotating the polygon (see 272, 274); wherein the facet has a total surface area, and each of the plurality of light beams is reflected onto the substrate surface using a respective portion of the facet surface; wherein the sum of the respective portions of the facet surface used to reflect the light beams is greater than 90 percent of the total surface area (inherent). The first portion of the surface of the substrate is the same as the second portion of the surface of the substrate (1<sup>st</sup> and 2<sup>nd</sup> portions are not clearly define in the claims, therefore, the scan lines on 270 met the languages). The system

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further comprises a movable stage (by 254) for supporting the substrate and moving the substrate relative to the polygon.

25. The system of claim 24, wherein the stage is for moving the substrate such that the first portion (272) of the surface of the substrate is different than the second portion (274) of the surface of the substrate of the substrate are different from each other.

However, both the first and second light beams of Flint do not impinge on the incident location on the facet. Hayashi et al discloses the teaching of the first and second light beams that impinge on the incident location (see Fig. 1). It would have been obvious to one of ordinary skill in the art to impinge two lights on the same incident location on the facet for the purpose of increasing the resolution of the scanned lights, so that the high quality of image can be obtained.

3. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Flint in view of Hayashi et al, and further in view of Fantuzzo et al.

Flint in view of Hayashi et al discloses the claimed invention as set forth above except that an acousto-optic deflector is used to deflect the original light beam to impinge on the facet at the first and second incident angles at the

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first and second time intervals, respectively. Fantuzzo et al discloses an acousto-optic deflector that is used to deflect the original light beam to impinge on the facet at the first and second incident angles at the first and second time intervals (Fig. 2 and column 5, lines 36-51). It would have been obvious to one of ordinary skill in the art to use an acousto-optic deflector to deflect the original light into more than one, because the acousto-optic deflector can actually create more than one, further more than two light beams, which does not require additional beam splitter in order to get more than two lights.

4. Claims 4, 5, 18, 26 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Flint in view of Hayashi et al.

Flint in view of Hayashi et al discloses the claimed invention as set forth above except that there is an additional beam splitter for a third light beam. It would have been obvious to one of ordinary skill in the art to one more beam splitter to create more light beams, since it has been held that **mere duplication** of the essential working parts of a device involves only routine skill in the art, so that the clear and

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high quality image can be obtained. *St. Regis Paper Co. V. Bemis Co.*, 193 USPQ 8.

### ***Response to Arguments***

5. Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Harada discloses a scanning device that has all light beams impinging on the incident location in the facet (see Fig. 1).

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened



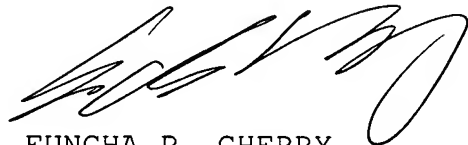
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statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to EUNCHA P. CHERRY whose telephone number is 703-305-0997. The examiner can normally be reached on M-F 6:30-4:00, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, DREW DUNN can be reached on 703-305-0024. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.



EUNCHA P. CHERRY  
Primary Examiner  
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